

**PESTICIDE BRANCH**

March 9, 1960

**Division of Pharmacology**

Evaluation of the pharmacological data presented in support of a request to raise the present tolerance of 25 ppm HCN on certain grains to 75 ppm.

PESTICIDE PETITION NO. 195

American Cyanamid Co  
Princeton New Jersey (AF 14-731)

The petitioner requests an increase in the tolerance residue levels of hydrogen cyanide (HCN) from 25 ppm to 75 ppm on certain grains based on the claim that the postharvest treatment of these grains under the present methods of application result in residues greater than 25 ppm. The proposed tolerances would apply to barley, buckwheat, corn, milo, oats, rice, rye and wheat.

In our memo dated 1/10/56 (PF #39), we discussed in detail the pharmacology previously presented. In this memo, we stated that HCN is a very toxic substance acutely but that it is rapidly detoxified by conversion into thiocyanate, which has a low order of chronic toxicity.

In our memo of 2-16-59 (PF #195), we stated that the requested increase to 75 ppm would be a safe practice as far as human food is concerned since the increase of HCN residue in products for human consumption would be driven off by the cooking process.

We also stated that the data did not support a conclusion that grain or its byproducts carrying up to 75 ppm HCN would be safe for domestic animals. The company has now submitted new data to clarify this point.

Five dogs (3 male and 2 females) were fed 150 ppm of sodium cyanide for thirty days. No effects were found on hematology, feed consumption, gross behavior or appearance, nor did it induce any gross or microscopic pathology.

Six young growing pigs were fed 150 ppm of sodium cyanide for 31 days and six received control diet. There were no adverse effects on feed consumption or average daily weight gains caused by the incorporation of 150 ppm sodium cyanide into the rations of these pigs.

Two chicken studies were carried out. In the first of these, two groups of 50-day-old broiler strain chickens were started: 25 on 150 ppm sodium cyanide, and a like number on control, for 32 days. All chicks were normal at the conclusion of the test. Results indicated that the incorporation of 150 ppm sodium cyanide in the feed had little or no effect on early broiler growth. In the second chicken study, 18 white leghorn hens, approximately eight months of age, were divided into two groups of nine hens each. One group was fed a typical laying ration, and the other group received the same ration supplemented with 150 ppm sodium cyanide for 30 days. Egg production and feed consumption were similar in each group.

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The experiments discussed above show that 75 ppm HCN would be safe for domestic animals.

CONCLUSION:

The new data presented in this supplement show that the proposed tolerance of 75 ppm HCN in the treated grain would be safe for domestic animals; also there would be no hazard to humans. Therefore, this request for changing the tolerance from 25 ppm to 75 ppm HCN in grain is safe.

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cc DP  
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